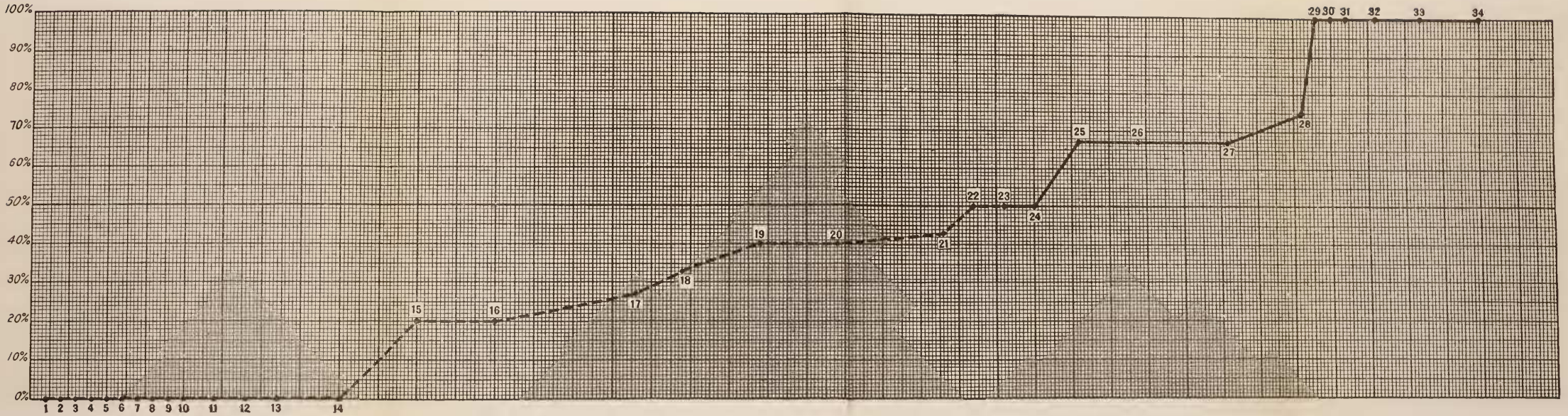


CURVE VI.

DISTRIBUTION CHART SHOWING PERCENTAGE OF GENERA DISTRIBUTED ACCORDING TO STEERE'S LAW, IN EACH FAMILY OF PHILIPPINE LAND BIRDS. FOUR UNITS OF HORIZONTAL SPACE ARE GIVEN TO EACH GENUS OF A FAMILY.

1. Podargidæ.
2. Meropidæ.
3. Fringillidæ.
4. Hirundinidæ.
5. Oriolidæ.
6. Paridæ.
7. Pittidæ.
8. Ploceidæ.
9. Turnicidæ.
10. Zosteropidæ.
11. Caprimulgidæ.
12. Dicæidæ.
13. Laniidæ.
14. Treronidæ.
15. Sylviidæ.
16. Nectariniidæ.
17. Muscicapidæ.
18. Bubonidæ.
19. Alcedinidæ.
20. Cuculidæ.
21. Falconidæ.
22. Certhiidæ.
23. Peristeridæ.
24. Cypselidæ.
25. Campophagidæ.
26. Timeliidæ.
27. Pycnonotidæ.
28. Psittacidæ.
29. Corvidæ.
30. Eurylæmidæ.
31. Capitonidæ.
32. Dicruridæ.
33. Bucerotidæ.
34. Picidæ.

# SUPPLEMENT TO THE ANNOTATED CATALOGUE OF THE PUBLISHED WRITINGS OF CHARLES ABIATHAR WHITE, 1886–1897.

By Timothy W. Stanton.

In 1885 Mr. J. B. Marcou published in Bulletin 30 of the United States National Museum,[1] an "Annotated catalogue of the published writings of Charles Abiathar White," covering the period from 1860 to 1885, inclusive. The present list is a continuation of that catalogue, the entries being numbered consecutively through both lists, bringing Doctor White's personal bibliography down to the close of 1897. The first five entries were inadvertently omitted from the earlier catalogue, and are, therefore, not in their regular chronological order.

Charles A. White was born in North Dighton, Bristol County, Massachusetts, on January 26, 1826. In 1838 he removed with his father's family to Iowa, where he resided until 1873. For thirty-seven years his writings and his labors have related chiefly to scientific subjects, especially geology and paleontology, and during that time he has held many official positions and received many academic and professional honors.

He received the degree of M. D. from Rush Medical College, Chicago, in 1863 and the degree of A. M. in 1866 from Iowa State College. He was State geologist of Iowa, by legislative appointment, from 1866 to 1869, inclusive; professor of natural history in the Iowa State University from 1867 to 1873; professor of natural history in Bowdoin College from 1873 to 1875; paleontologist to the geographical and geological surveys west of the one hundredth meridian in charge of Lieutenant George M. Wheeler, in 1874; geologist and paleontologist to the United States Geological Survey of the Territories, in charge of Major J. W. Powell, in 1875; geologist and paleontologist to the United States Geological Survey of the Territories, in charge of Doctor F. V. Hayden, from 1876 to 1879; curator in charge of the paleontological collections of the United States National Museum from 1879 to 1882; detailed in 1881 to act as chief of the Artesian Wells Commission under the auspices of the United States Department of Agriculture; geologist and paleontologist to the United States Geological Survey from 1883 to 1892, and he now holds the relation to the Smithsonian Institution of associate in paleontology.

[1] Pages 113–181.

He was president of the Washington Biological Society for the years 1883 and 1884; vice-president of the American Association for the Advancement of Science in 1889, and in the same year he was elected a member of the United States National Academy of Sciences. The degree of LL. D. was conferred upon him in 1893 by the Iowa State University, and in the same year he was elected to corresponding membership in the following foreign academies and scientific societies: The Geological Society of London; Isis Gesellschaft für Naturkunde, Dresden; R. Accademia Valdarnese del Poggio, Montevarchi; K. K. Geologische Reichsanstalt, Vienna, and in the Kaiserliche Leopoldinisch-Carolinische Deutsche Akademie der Naturforscher, Halle an der Saale.

152.

WHITE, C. A. The Permian Formation in North America. <Bull. Philos. Soc. Washington, vol. iii, pp. 104–105. Washington, 1880.

A brief review of those North American strata which had been recognized as of Permian age. It was inadvertently omitted from the preceding list.

153.

WHITE, C. A. Descripcion de un gran Fossil Gasteropodo del estado de Puebla (México). <La Naturaleza, tomo vi, pp. 219–221, with two figures. City of Mexico, 1882.

This is a translation into Spanish and a republication, by Professor Mariano Barcena, of No. 89 of the preceding list, from which it was inadvertently omitted. The fossil described is *Tylostoma princeps* White.

154.

WHITE, C. A. [Administrative Report for the year 1883–84] <Fifth Annual Report of the Director of the U. S. Geological Survey, pp. 50–51. Washington. 1885.

Inadvertently omitted from the preceeding list.

155.

WHITE, C. A. [Administrative Report for the year 1884–85] <Sixth Annual Report of the U. S. Geological Survey, pp. 42–44. Washington, 1885.

Inadvertently omitted from the preceding list.

156.

WHITE, C. A. Notes on the Mesozoic and Cenozoic paleontology of California. <Bulletin U. S. Geological Survey No. 15, pp. 1–33. Washington, 1885.

It is claimed that the Chico and Téjon formations constitute a continuous series; that the Aucella-bearing Auriferous Slates are equivalent to the Knoxville division of the Shasta formation, and no species of Cretaceous fossils of the Pacific Coast region have been satisfactorily identified with any from either the interior or Atlantic Coast regions. It was inadvertently omitted from the preceding list.

157.

WHITE, C. A. On the Fresh Water Invertebrates of the North American Jurassic. Bulletin U. S. Geological Survey No. 29, pp. 1–41, pls. i–iv. Washington, 1886.

This bulletin contains a summary of all the known North American fresh water Jurassic invertebrates, and all are figured. They are:

| | Page. |
|---|---|
| *Unio felchii*, n. s. | 16 |
| *U. iridoides*, n. s. | 17 |
| *U. lapilloides*, n. s. | 18 |
| *U. macropisthus*, n. s. | 17 |
| *U. nucalis* Meek & Hayden | 19 |

## 158.

WHITE, C. A. On the Relation of the Laramie Molluscan Fauna to that of the succeeding fresh-water Eocene, and other groups. <Bulletin of the U. S. Geological Survey, No. 34 (Vol. v), pp. 1–51 (388–442), pls. i–v. Washington, 1886.

The opinion is advanced that sedimentation was at no time wholly interrupted from the beginning of the deposition of the Colorado formation to the close of that of fresh-water Eocene formations of the interior region of North America. Five plates of figures of fossils are given, some of which are shown to have ranged from the Laramie into the fresh-water formations which overlie it. The following species are described and figured:

MOLLUSCA.



CRUSTACEA.



## 159.

WHITE, C. A. On New Generic Forms of Cretaceous Mollusca and their relation to other forms. <Proc. Acad. Nat. Sci. Phila. for 1887, pp. 32–37, and one plate. Philadelphia, 1887.

The genera Dalliconcha, Stearnsia, and Aguileria are proposed and type specimens of each are figured.

Same. Seventy extras printed without title-page, covers, or repaging.

160.

WHITE, C. A. On the Cretaceous Formations of Texas and their relations to those of other portions of North America. <Proc. Acad. Nat. Sci. Phila. for 1887, pp. 39–47. Philadelphia, 1887.

The order of superposition of the Cretaceous formations of Texas is given.

Same. Seventy extras printed without title-page, covers, or repaging.

161

WHITE, C. A. On the age of the Coal found in the Region traversed by the Rio Grande. <American Journal of Science, 3d ser., vol. xxxiii, pp. 18–20. New Haven, 1887.

The coal is stated to be of Upper Cretaceous age, a part of which is in the Laramie formation.

Same. Twenty separates printed without title-page, covers, or repaging.

162.

WHITE, C. A. Remarks on the "Revision of the Palæocrinoidea" of Wachsmuth and Springer. <American Journal of Science, 3d ser., vol. xxxiii, pp. 154–157. New Haven, 1887.

This article is a review of the publication named, and a summary of the views entertained by the authors.

Same. Seventy-five extras printed without covers, title-page, or repaging.

163.

WHITE, C. A. On the Inter-relation of Contemporaneous Fossil Faunas and Floras. <American Journal of Science, 3d ser., vol. xxxiii, pp. 364–374. New Haven, 1887.

The relative differences of time range of different species, genera, and families of animals and plants are pointed out, and special attention is called to the fact that it is seldom possible to determine the contemporaneity of non-marine with marine formations.

Same. Thirty extras printed with half-title, but without covers or repaging.

164.

WHITE, C. A. [Review of.] The summit plates in Blastoids, Crinoids, and Cystids, and their morphological relations; by Charles Wachsmuth and Frank Springer. <American Journal of Science, 3d ser., vol. xxxiv, p. 232. New Haven, 1887.

165.

WHITE, C. A. [Review of.] Charles D. Walcott: Second Contribution to the Studies on the Cambrian faunas of North America (Bulletin No. 30, U. S. Geological Survey, p. 225, 33 plates of wood cuts. Washington, 1886). <Neues Jahrbuch für Min., Geol. und Paläont. Jahrgang, 1887, II. Band, pp. 361–363. Stuttgart, 1887.

166.

WHITE, C. A. Contribuições á Paleontologia do Brazil (Com o original em Inglez), Por Charles A. White, M. D. Archivos do Museu Nacional do Rio de Janeiro, volume vii, pp. 1–273, pls. 1–27, 4°. Impressa Nacional, Rio de Janeiro, 1887.

This work is devoted entirely to invertebrate fossils, all of which are referred to the Cretaceous. The following is a list of the species described and figured.

## MOLLUSCA.

### CONCHIFERA.

(*Marine species.*)

(*Fresh-water species.*)



GASTEROPODA.

(*Marine species.*)

(*Fresh-water species.*)

CEPHALOPODA.



POLYZOA.



ECHINODERMATA.

ASTEROIDEA.



ECHINOIDEA.



## 167.

WHITE, C. A. Contributions to the Paleontology of Brazil.

This edition is identical with that of entry 166, except that it is furnished with an English title-page. No change is made in either the pagination or the numbering of the plates. Three hundred and fifty copies of this edition were issued from the Smithsonian Institution, Washington, 1888.

## 168.

WHITE, C. A. On the Occurrence of Later Cretaceous deposits in Iowa. <American Geologist, vol. i, pp. 221–227, one wood cut. Minneapolis, 1888.

The announcement is made of new discoveries of Cretaceous deposits in Iowa by Professor E. Haworth. *Lispodesthes? haworthi*, n. s., is described and figured.

Same. Thirty copies printed separately without title-page, covers, or repaging.

## 169.

WHITE, C. A. On Hindeastræa, a new generic form of Cretaceous Astraeidae. <Geological Magazine. Dec. III, vol. v, No. 8, pp. 362, 363. London, 1888.

*Hindeastrea discoidea* is described and figured.

Same. Thirty separates printed with repaging, but without title-page or covers.

170.

WHITE, C. A. On the Relation of the Laramie Group to earlier and later formations. <Am. Jour. Sci., 3d ser., vol. xxxv, pp. 432–438. New Haven, 1888.

The relation of the Laramie to the Belly River series of Canada and to the Lignitic of the Gulf States is especially discussed.

Same. Twenty copies printed without title-page, covers, or repaging.

171.

WHITE, C. A. On the Puget Group of Washington Territory. <Amer. Jour. Sci., 3d ser., vol. xxxvi, pp. 143–150. New Haven, 1888.

The Puget Group is a nonmarine formation found in the State of Washington, and lies upon the confines of the Cretaceous and Tertiary. Its fauna is described and figured in entry 181.

Same. Twenty separates printed without title-page, covers, or repaging.

172.

WHITE, C. A. Mountain Upthrusts. <American Naturalist, vol. xxi, pp. 399–408. Philadelphia, 1888.

The character of the displacements which resulted in the production of Yampa and Junction mountains in Colorado, as well as those of some other mountains, is explained. The subject is more fully discussed in entry 177.

Same. Fifty copies printed separately without title-page, covers, or repaging.

173.

WHITE, C. A. A Probable Case of Instinct at Fault in Bees. <American Naturalist, vol. xxi, pp. 1029–1030. Philadelphia, 1888.

This case is one of extinction of bee swarms, evidently caused by the filling of all the cells with easily obtained honey, so that there were no empty cells in which the queen might deposit her eggs.

Same. Thirty copies printed separately without title-page, covers, or repaging.

174.

WHITE, C. A. Remarks on the Genus Aucella, with especial reference to its occurrence in California. <Monographs of the U. S. Geological Survey, vol. xiii; Geology of the Quicksilver Deposits of the Pacific Slope, pp. 226–232, and pls. iii and iv. Washington, 1888.

The figures, 41 in number, include copies of many of the forms of *Aucella* which have been published from various parts of the world.

Same. Fifty separates printed without title-page, covers, or repaging.

175.

WHITE, C. A. [Administrative Report for the year 1885–86.] <Seventh Annual Report of the U. S. Geological Survey, pp. 117–120. Washington, 1888.

176.

WHITE, C. A. On Certain Mesozoic Fossils from the Islands of St. Pauls and St. Peters in the Straits of Magellan. <Proc. U. S. National Museum, vol. xiii, pp. 13, 14, pls. 2 and 3. Washington, 1889.

Two species are described and figured—*Hamites elatior* Forbes? and *Lucina? townsendi*, n. s.

Same. Fifty copies printed separately with paper covers and title-page, but without repaging.

### 177.

WHITE, C. A. On the Geology and Physiography of a portion of Northwestern Colorado and adjacent parts of Utah and Wyoming. <Ninth Annual Report of the U. S. Geological Survey, pp. 677–712 and map. Washington, 1889.

This memoir covers substantially the same ground as that of entry No. 64, but the discussions are much extended and the subject more fully illustrated. The illustrations of the former report are corrected wherein they were erroneous.

Same. One hundred copies printed separately, with paper covers and title-page, but without repaging.

### 178.

WHITE, C. A. New Fossil Mollusca from the Chico-Téjon series of California. <Bulletin U. S. Geological Survey No. 51. On Invertebrate Fossils from the Pacific Coast, pp. 11–27, pls. I–V. Washington, 1889.

The following species are described and figured:

| | Page. |
|---|---|
| *Ostrea (Alectryonia) dilleri*, n. s. | 14 |
| *Zirphæa plana*, n. s. | 15 |
| *Actæon inornatus*, n. s. | 15 |
| *Vasculum*, gen. nov. | 16 |
| *V. obliquum*, n. s. | 16 |
| *Lysis oppansus*, n. s. | 17 |
| *Trochus (Anadema) gemiferus*, n. s. | 17 |
| *Stomatia obstricta*, n. s. | 18 |
| *Gyrodes dowelli*, n. s. | 19 |
| *Rimella macilenta*, n. s. | 19 |
| *Mesalia obtusa*, n. s. | 20 |
| *Faunus marcidulus*, n. s. | 20 |
| *Ceratia nexilia*, n. s. | 21 |
| *Trophon condoni*, n. s. | 21 |
| *Cominella lecontei*, n. s. | 22 |
| *Fulgur hilgardi*, n. s. | 22 |
| *Fulguraria gabbi*, n. s. | 23 |
| *Cancellaria turneri*, n. s. | 25 |
| *Scobinella dilleri*, n. s. | 25 |
| *Ammonites turneri*, n. s. | 26 |

### 179.

WHITE, C. A. On Occurrence of Equivalents of the Chico-Téjon Series in Oregon and Washington Territory. <Bulletin U. S. Geological Survey No. 51. On Invertebrate Fossils from the Pacific Coast, pp. 28–32. Washington, 1889.

This brief article is devoted to notes concerning the northward extension of the Chico-Téjon series.

### 180.

WHITE, C. A. Cretaceous Fossils from Vancouver Island Region. <Bulletin U. S. Geological Survey No. 51. On Invertebrate Fossils from the Pacific Coast, pp. 33–48, pls. vi, vii. Washington, 1888.

This article of the bulletin contains an annotated list of 33 species collected by Professor J. S. Newberry upon Vancouver, and some of the smaller contiguous islands. The following species are described and figured:

| | Page. |
|---|---|
| *Perna excavata*, n. s. | 37 |
| *Crassatella tuscana* Gabb | 38 |
| *Clisocolus dubius* Gabb | 41 |
| *C. cordatus* Whiteaves | 41 |
| *Anatina sulcatina* Shumard? | 43 |
| *Vanikoropsis sueiensis*, n. s. | 76 |
| *Ammonites maclurei*, n. s. | 48 |

### 181.

WHITE, C. A. The Molluscan Fauna of the Puget Group. <Bulletin U. S. Geological Survey No. 51. On Invertebrate Fossils from the Pacific Coast, pp. 49–63; pls. 8 and 9. Washington, 1889.

The Puget Group is a lately recognized non-marine, coal-bearing formation lying mainly upon the eastern side of Puget Basin in the State of Washington. The following species found in its strata are described and figured:

| | Page. |
|---|---|
| *Cardium (Adacna?)* —— ? | 58 |
| *Cyrena brevidens*, n. s. | 58 |
| *Corbicula willisi*, n. s. | 59 |
| *C. pugetensis*, n. s. | 60 |
| *Batissa newberryi*, n. s. | 60 |
| *B. dubia*, n. s. | 61 |
| *Psammobia obscura*, n. s. | 61 |
| *Sanguinolaria? cavdata*, n. s. | 61 |
| *Teredo pugetensis*, n. s. | 62 |
| *Neritina* —— ? | 62 |
| *Cerithium* —— ? | 62 |
| Undetermined gasteropod | 62 |

### 182.

WHITE, C. A. Mesozoic Mollusca from the southern coast of the Alaskan Peninsula. <Bulletin U. S. Geological Survey No. 51. On Invertebrate Fossils from the Pacific Coast, pp. 64–70; pls. 12–14. Washington, 1889.

The collection upon which this article is based was sent to the office of the Survey from the western end of Kadiak Island. The following species are described and figured:

| | Page. |
|---|---|
| *Cucullæa increbescens*, n. s. | 65 |
| *Glycimeris dalli*, n. s. | 66 |
| *Belemnites* —— ? | 67 |
| *B.* —— ? | 67 |
| *Ammonites (Lillia) howelli*, n. s. | 68 |
| *A. (L.) kialagvikensis*, n. s. | 69 |
| *A. (Amaltheus) whiteavesii*, n. s. | 69 |

### 183.

WHITE, C. A. The North American Mesozoic. Address as vice-president of Section E, of the American Association for the Advancement of Science, at Toronto, August, 1889. <Proc. A. A. A. S., vol. xxxviii, pp. 205–226. Salem, 1889.

The author gives a general review of the North American Mesozoic formations and shows their relation to one another. He is of the opinion that its subdivisions can not be closely correlated with those of the European Mesozoic.

Same. Two hundred copies in paper covers, with title-page and repagination.

Same. Published in full in Science, New York, vol. xiv, pp. 160–166.

### 184.

WHITE, C. A. Remarks on the Cretaceous of Northern Mexico. <Proc. Amer. Ass. Adv. Sci., vol. xxxviii, p. 252 (Abstract). Salem, 1889.

The subject of these remarks is more fully discussed in entry 186.

### 185.

WHITE, C. A. On the Permian Formation of Texas. <American Naturalist, vol. xxiii, pp. 109–128; pl. 1. Philadelphia, 1889.

The character and limitation of the Texan Permian are discussed and the three following species are described and figured as new:

| | Page. |
|---|---|
| *Ptychites cummingsi*, n. s. | 117 |
| *Medlicottia copei*, n. s. | 117 |
| *Popanoceras walcotti*, n. s. | 117 |

The subject is more fully discussed in entry No. 190.

Same. Fifty extra copies printed, without covers, title-page, or repagination.

186.

WHITE, C. A. The Lower Cretaceous of the Southwest, and its relation to underlying and overlying formations. <Am. Jour. Science, 3d ser., vol. xxxviii, December, 1889, pp. 440-445. New Haven, 1889.

The Comanche series is mainly discussed in this article. Its extension into Western Texas and Northern Mexico is shown; and it is also shown that its thickness there is much greater than it was before known to possess.

Same. Twenty-two copies printed separately, with half-title, but without covers or repagination.

187.

WHITE, C. A. [Administrative] Report—Division of Mesozoic Paleontology. <Eighth Annual Report of the U. S. Geological Survey, pp. 178-181. Washington, 1889.

188.

WHITE, C. A. [Administrative] Report—Division of Mesozoic Invertebrates. <Ninth Annual Report of the U. S. Geological Survey, pp. 120-123. Washington, 1889.

189.

WHITE, C. A. A sketch of the scientific work of Professor A. H. Worthen [including bibliography] Geol. Surv. Illinois, vol. viii, Appendix, pp. 18-37. Springfield, 1890.

The bibliographical part of this sketch is republished, with some corrections, in entry No. 198.

190.

WHITE, C. A. [Remarks on Notes on the Early Cretaceous of California and Oregon, by George F. Becker.] Bull Geol. Soc. America, vol. ii, p. 208, Rochester, 1891.

In these remarks Doctor White made reference to the commingling of types upon the confines of systems similar to those which he made with reference to entry No. 192.

191.

WHITE, C. A. Correlation Papers, Cretaceous: A Review of the Cretaceous formations of North America. <Bulletin U. S. Geological Survey No. 82, p. 273. Washington, 1891.

This memoir is a discussion of all the known Cretaceous formations of North America, and an exhibition of their stratigraphical relations to one another according to the views of the author.

192.

WHITE, C. A. The Texan Permian and its Mesozoic types of Fossils. <Bulletin U. S. Geological Survey No. 77, p. 51, pls. i-iv. Washington, 1891.

This bulletin embraces a much enlarged discussion of the subject of entry No. 185, and contains illustrations of all the invertebrate species which had, up to the time of its publication, been discovered in the Texan Permian. The following species are figured, and in part described:

| | Page. |
|---|---|
| *Goniatites baylorensis*, n. s | 19 |
| *Waagenoceras cummingsi* White | 20 |
| *Medlicottia copei* W | 21 |
| *Popanoceras walcotti* W | 21 |
| *Orthoceras rushensis* McChesney | 22 |
| *Nautilus winslowi* Meek & Worthen | 23 |
| *N. occidentalis* Swallow | 23 |
| *N.* ——? | 23 |
| *N.* ——? | 24 |
| *N.* ——? | 24 |
| *N.* (*Endolobus*) ——? | 24 |

## 193.

WHITE, C. A. On the biological and geological significance of closely similar fossil forms. <Proc. Amer. Assn. Adv. Sci., vol. xxxix, pp. 239–243. Salem, 1891.

The author thinks that for geological purposes it is often advisable to give separate names to fossil species, even though it should be impracticable to diagnose them as specifically different from forms which are members of other and different faunas.

Same. One hundred extras printed without covers and without repaging.

## 194.

WHITE, C. A. [Remarks upon On the Permian, Triassic, and Jurassic formations in the East Indian Archipelago (Timor and Rotti), by Doctor August Rothpletz.] Bull. Geol. Soc. Amer., vol. iii, p. 14. Rochester, 1891.

Doctor White spoke of this as one of several cases now known of the commingling of faunal types upon the confines of the Mesozoic and Paleozoic systems, and as indicating a condition which we always ought to expect.

## 195.

WHITE, C. A. [Remarks on A Geological Map of South America, by Professor Doctor Gustav Steinmann.] <Bull. Geol. Soc. Amer., vol. iii, p. 14. Rochester, 1891.

Doctor White referred especially to the Cretaceous fauna which he had published for the National Museum of Brazil. He said that he found that fauna to have much more affinity with the Cretaceous fauna of Southern India than with that of any portion of the North American Cretaceous.

## 196.

WHITE, C. A. [Remarks on The Comanche Series of the Texas-Arkansas Region, by Robert T. Hill.] Bull. Geol. Soc. Amer., vol. ii, pp. 525, 526. Rochester, 1891.

Doctor White agreed with the speaker as to the great difficulty of correlating American with European series of strata, and mentioned cases of such attempted correlation in which the true stratigraphical order was reversed.

## 197.

WHITE, C. A. [Remarks on Variations in the Cretaceous and Tertiary Strata of Alabama, by Daniel W. Langdon.] Bull. Geol. Soc. Amer., vol. iii, p. 606. Rochester, 1891.

Doctor White mentioned the difficulty of determining the limitations of the different recognized divisions of the Cretaceous of the Gulf States, either paleontologically or lithologically.

198.

WHITE, C. A. On the Bear River formation, a series of strata hitherto known as the Bear River Laramie. <Am. Jour. Sci., 3d ser., vol. xliii, pp. 91–97. New Haven, 1892.

This article gives a historical account of what has been published concerning the formation in question, and it is a companion article to one written by Mr. T. W. Stanton showing the true stratigraphic position of the formation.

Same. Two hundred extras, with paper covers and half-title, but without repaging.

199.

WHITE, C. A. Memoir of Amos Henry Worthen. <Biographical Memoirs of the National Academy of Sciences, vol. iii, pp. 339–362. Washington, 1893.

This memoir contains the bibliography of Mr. Worthen's writings which is contained by entry No. 187, but with slight corrections.

Same. One hundred extra copies printed with paper covers and title-page.

200.

WHITE, C. A. Memoir of Ferdinand Vandiveer Hayden. <Biographical Memoirs of the National Academy of Sciences, vol. iii, pp. 395–414. Washington, 1893.

Same. One hundred extra copies printed with paper covers, title page, and portrait.

201.

WHITE, C. A. The Relation of the Sounds of Fog Signals to other Sounds. <Science, vol. xxiii, pp. 56–62. New York, 1894.

Two kinds of areas of inaudibility of fog signals are differentiated under the names of montumbral and pseudumbral, and each is characterized. The author believes that other sounds than those of the neighboring fog signal may be projected from various directions into any of those areas of inaudibility of the sounds of the signal, and that echoes of the latter may also be projected into any of those areas. Possible danger to shipping in the latter cases is pointed out.

202.

WHITE, C. A. The Relation of Biology to Geological Investigation. A series of essays discussing the nature and scientific uses of fossil remains and the necessity for their systematic collection and permanent conservation in public museums. <Annual Report U. S. National Museum for 1892, pp. 245–368. Washington, 1894.

The special object of these essays is the defense of biology as an indispensable element of geological investigation.

Same. Five hundred extras printed with paper covers and title-page, but without repagination.

203.

WHITE, C. A. Notes on the Invertebrate Fauna of the Dakota Formation with descriptions of new molluscan forms. <Proc. U. S. Nat. Museum, vol. xvii, pp. 131–138 and pl. viii. Washington, 1894.

This article announces the discovery in Jefferson County, Nebraska, by Professor L. E. Hicks, of a fresh-water fauna in strata of the Dakota formation. The following species are described and figured.

| | Page. |
|---|---|
| *Unio barbouri*, n. s. | 133 |
| *U.* ——? | 133 |
| *Corbula hicksii*, n. s. | 134 |
| *Goniobasis jeffersonensis*, n. s. | 134 |
| *G.* ——? | 135 |
| *Viviparus hicksii*, n. s. | 135 |
| *Pyrgulifera meekii*, n. s. | 135 |